Central Valley Regional Water Quality Control Board
4/5 December 2008 Board Meeting

Response to Comments for the El Dorado Irrigation District
Deer Creek Wastewater Treatment Plant
Tentative Waste Discharge Requirements

The following are Regional Water Quality Control Board, Central Valley Region (Regional Water Board) staff responses to comments submitted by interested parties regarding the tentative Waste Discharge Requirements (NPDES Permit renewal) for the El Dorado Irrigation District, Deer Creek Wastewater Treatment Plant. Public comments regarding the proposed Orders were required to be submitted to the Regional Water Board by 5:00 p.m. on 24 October 2008 in order to receive full consideration.

The Regional Water Board received comments regarding the proposed NPDES Permit renewal by the due date from the El Dorado Irrigation District (Discharger) and the California Sportfishing Protection Alliance (CSPA). The submitted comments were accepted into the record, and are summarized below, followed by Regional Water Board staff responses.

EL DORADO IRRIGATION DISTRICT COMMENTS

Discharger Comment No. 1. p. 2, G. Water Quality Based Effluent Limitations – This finding states: "This Order contains requirements, expressed as a technology equivalence requirement, that are necessary to meet applicable water quality standards. The Regional Water Board has considered the factors listed in CWC Section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet."

- First, effluent limitations are either technology-based or water quality-based. Neither federal nor State regulations prescribe a "technology equivalence requirement." This section states that these requirements are "necessary to meet applicable water quality standards" and, as such, are water-quality based. Therefore, the District requests the following edit: "This Order contains requirements, expressed as a water quality-based ~~technology equivalence~~ requirement, that are necessary to meet applicable water quality standards."

- Second, this finding states: "The Regional Water Board has considered the factors listed in CWC Section 13241 in establishing these requirements." There are inadequate discussion and findings relating to the section 13241 factors in the Order and the Fact Sheet and thus no evidentiary basis to support the statement that the factors have been considered is presented. As such, the Order does not adequately consider the 13241 factors when imposing limitations more stringent than federal standards. This same comment applies to finding "M" (p. 9) and to Attachment F (p. F-9).

  RESPONSE: Regional Water Board staff concurs with the first part of the Discharger's comments and has made the suggested modifications to the proposed Order.

  Regarding the second comment, previous Order No. R5-2002-0210 required effluent limitations and a tertiary level of treatment, or equivalent, necessary to protect the beneficial uses of the receiving water. The Regional Water

Board considered the factors contained in CWC section 13241 in establishing these conditions, which were included as findings in Order No. R5-2002-0210. The proposed Order retains effluent limitations and the requirement to provide a tertiary level of treatment, or equivalent. Finding II.G has been revised to indicate that the factors contained in CWC section 13241 were considered with adoption of Order No. R5-2002-0210.

As the commenter points out, the limitations based on tertiary treatment are required by the Clean Water Act even though they are more stringent than the technology-based secondary treatment standard. *City of Burbank v. State Water Board* (2005) 35 Cal.4th 613, does not require the Regional Water Board to make Section 13241 findings before requiring tertiary treatment. However, the State Water Board has consistently required Section 13241 findings when a permit imposes limits that are more stringent than applicable numeric objectives, or new limits based on narrative objectives. (*See, e.g.,* Order WQ 2001-16, pp. 32-33; Order No. 2002-0016, p. 9.) The requirement to consider Section 13241 factors is based on the effluent limits being more stringent than applicable numeric objectives; the State Water Board never indicated that the requirements were more stringent than the Clean Water Act requires. While the prior State Water Board orders are questionable in light of *Burbank*, the Regional Water Board has previously made these findings and is not required to update them.

Discharger Comment No. 2. p. 7, S. Provisions and Requirements Implementing State Law – The "UV Disinfection System and Operating Specifications" on p. 22 of the Order are requirements implementing state law and, thus, section VI.C.4.c should also be cited in this section.

RESPONSE: Regional Water Board staff disagrees. As discussed above in response to Discharger Comment No. 1, tertiary-treatment-or-equivalent requirements are necessary to protect designated uses and are therefore required by the Clean Water Act. The cited operational provisions ensure that system operates properly and the facility provides a level of treatment that is adequate to protect the uses in question.

Discharger Comment No. 3. p. 8, III. Discharge Prohibitions, E. – The District requests the following edit for clarification.

"E. Use of chlorine and/or chlorine containing substances within the treatment process ~~and~~ <u>that result in</u> discharge of chlorine or chlorine containing substances into the receiving water is prohibited."

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 4. p. 11, Interim Effluent Limitations for EC – The Order contains an interim effluent limitation for EC of 500 µmhos/cm as an annual average. Historical (1/31/2003 – 9/8/2008) average annual EC levels in the Deer Creek WWTP effluent have been as follows:

Year	Annual Average EC (µmhos/cm)
2003	713
2004	653
2005	646
2006	562
2007	455
2008 (thru 9/8)	474

The average effluent EC since the ultraviolet (UV) disinfection process came online in August 2006 is 468 µmhos/cm (through 9/9/08). This EC level is well below both the United Nations goal for agricultural uses of 700 µmhos/cm and the DPH's recommended MCL of 900 µmhos/cm. Yet, the Fact Sheet concludes that an interim effluent limitation for EC is needed. This need is stated as follows: "of additional concern is the salt contribution to Delta waters." This is not adequate reason to impose EC limitations at this facility.

The Order makes additional statements related to the regulation of salinity in discharges:

1. Citing the State Water Board, in Water Quality Order 2005-005 (for the City of Manteca), "*Although the ultimate solution to southern Delta salinity problems have not yet been determined, previous actions establish that the State Board intended for permit limitations to play a limited role with respect to achieving compliance with the EC water quality objectives in the southern Delta."* The State Water Board goes on to say, *"Construction and operation of reverse osmosis facilities to treat discharges…prior to implementation of other measures to reduce the salt load in the southern Delta, would not be a reasonable approach."* [p. F-27, emphasis added]

2. "*The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Regional Water Board is considering limiting effluent salinity of municipal wastewater treatment plants to an increment of 500 µmhos/cm over the electrical conductivity of the municipal water supply as representing BPTC*." [p. F-46]

Implementation of a 500 µmhos/cm interim EC limitation in the Order would be inconsistent with both the above State and Regional Water Board policies, past State practices, and federal guidance for issuing NPDES permits for three reasons.

First, both the average effluent and receiving water EC levels are substantially lower than the lowest numeric criterion that might be used to interpret the narrative objective (i.e., the United Nations agricultural goal of 700 µmhos/cm). In fact, the effluent EC averages approximately

235 µmhos/cm lower than the State's lowest goal level for POTWs. Clearly there is no water quality problem from the effluent contribution to the receiving water (Deer Creek) or the receiving water contributing its flow to the Delta.

Second, the Order states that the Regional Water Board is considering limiting effluent EC to 500 µmhos/cm over the water supply as representing BPTC. The interim EC limitation of 500 µmhos/cm is equal to the allowable ***increment*** and does not account for any contribution from the water supply, which means that the Order is requiring the District to go beyond the State's view of BPTC to control EC. The Deer Creek WWTP already provides BPTC with respect to EC, as evidenced by the effluent EC being only 36 µmhos/cm greater than the average EC of the receiving water of 430 µmhos/cm (as stated on page F-27) and the incremental increase in EC, over water supply, being substantially less than the Board's goal of 500 µmhos/cm.

Third, the proposed interim effluent limitation is not properly based on the Regional Board's own Salinity Guidance (*Memorandum Subject: Management Guidance for Salinity in Waste Discharge Requirements. Central Valley Regional Water Quality Control Board, April 26, 2007.*) As stated in Attachment A of the Salinity Guidance (General Approach to Writing the WDRs) (page 10) and restated here: *"Based on the effluent, receiving water, and water supply data that is available, does it look like there is a possible water quality problem?... If available data indicates that there is unlikely to be a water quality problem, document that conclusion, and don't make the discharger do a lot more."* Far from increasing its salinity loading and raising antidegradation concerns, the District has recently reduced its salinity loading substantially through plant upgrades (including UV disinfection) that have reduced the salt levels in the final effluent. Continued operation of these new facilities will continue to hold EC levels at their new lower levels. An interim limitation that functions as an EC "cap" is not necessary in this circumstance.

Because the effluent EC is less than the Regional Water Board's water quality goals/objectives and the Deer Creek WWTP is already implementing BPTC for EC, and to be consistent with the facts presented in the Order, the Regional Board's Salinity Guidance, and the State's policies, the District requests that the interim EC limitation and salinity evaluation and minimization plan requirements be removed from the Order. The District requests the following specific edits be made to the Fact Sheet, p. 28.

> "Based on the relatively low reported salinity, the discharge currently does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity <u>in its direct receiving water or in downstream Delta waters, nor does it have reasonable potential to cause an exceedance of the 700 umhos/cm EC water quality goal, based on Ayers and Westcot (1985)</u>. ~~However, since the Discharger discharges to Deer Creek, a tributary of the Cosumnes River and eventually the Sacramento – San Joaquin Delta, of additional concern is the salt contribution to Delta waters.~~ <u>Thus, effluent limitations for EC are not included in this Order at this time.</u>
>
> ~~Because conversion to UV disinfection from sodium-based chlorination and dechlorination at the Facility occurred in August 2006, sufficient representative monitoring data is not available~~

~~to calculate a final effluent limitation for salinity. This Order includes an interim performance-based annual average effluent limitation of 500 umhos/cm for EC which is applicable until the Regional Water Board completes development of a new salinity policy for the Central Valley or until sufficient monitoring data has been collected to establish a final effluent limitation, whichever is sooner. This interim performance-based effluent limitation is derived using the maximum observed rolling annual average effluent concentration observed from the Facility of 473 umhos/cm, rounded up, which occurred during the period ending on 9 September 2008, and maintaining the discharge of salinity at existing levels.~~

~~As discussed above, the Discharger replaced sodium-based chlorination and dechlorination with UV disinfection, which resulted in a significant decrease in the effluent EC concentrations. In order to ensure that the Discharger will continue to evaluate opportunities to control the discharge of salinity, this Order includes a requirement to develop and implement a salinity evaluation and minimization plan.~~"

RESPONSE: The Antidegradation Policy (Resolution No. 68-16) requires that the Discharger implement best practicable treatment or control (BPTC) of its discharge. For salinity, the Regional Water Board considers an effluent salinity of an increment of 500 µmhos/cm over the salinity of the municipal water supply as representing BPTC for municipal wastewater treatment plants. The annual average electrical conductivity concentration of the water supply is 70 µmhos/cm, which results in a BPTC limitation of 570 µmhos/cm. The maximum observed rolling annual average effluent concentration observed from the Facility subsequent to conversion to UV disinfection in August 2006 was 473 µmhos/cm, which occurred during the period ending on 9 September 2008. As evidenced by the relatively low levels of salinity in the effluent, the Discharger has provided for BPTC of its discharge. Therefore, the proposed Order has been revised to replace the interim performance-based limitation with an interim annual average effluent limitation of 570 µmhos/cm for EC, which represents the maximum annual average EC concentration of the water supply plus an increment of 500 µmhos/cm, in order to ensure that the Discharger will continue to control the discharge of salinity. The interim limitation is applicable until the Regional Water Board completes development of a new salinity policy for the Central Valley or upon availability of additional information.

Because the Discharger has provided for BPTC of the discharge and has significantly reduced salinity in the effluent, Regional Water Board staff find that the requirements for a Salinity Reduction Goal which requires annual reporting on the Discharger's progress towards reducing salinity in the effluent and a Salinity Evaluation and Minimization Plan which requires the Discharger to develop a plan to reduce salinity in the effluent are unnecessary. Therefore, these requirements have been removed from the proposed Order. However, the proposed Order has been modified to include an Evaluation and Minimization Report for salinity to ensure adequate

measures have been developed and implemented by the Discharger to reduce the discharge of salinity to Deer Creek.

Discharger Comment No. 5. p. 20, item 2.1.iii. Numeric Monitoring Trigger and MRP –The District finds a trigger of > 1 TUc (based on an NOEC) to be overly sensitive, based on past experiences at both of the District's wastewater treatment plants, whereby the statistical trigger can be exceeded yet the potential for an effect to aquatic life in the receiving water is unlikely or uncertain (i.e., the practical biological effect). Thus, the District will likely be faced with a regulatory requirement to determine the cause of bioassay results that do not have a strong basis in indicating significant adverse impacts to aquatic life at the discharge location. In addition, the investigative options available (e.g., toxicity identification evaluations (TIEs)) have typically resulted in inconclusive results if apparent toxicity is very low (<2 TUc) (pers. comm. S. Ogle, Pacific Ecorisk; S. Nurse, Sierra Foothill Labs; City of Davis TRE results to date). TIEs are further limited when: 1) small adverse effects (i.e., 10–15% reduction) are detected in bioassays with <2 TUc; 2) such effects may not occur in all bioassay tests; and 3) the effect is not persistent over time.

The District believes the whole effluent toxicity (WET) testing can be an effective screening tool for further investigation of potential adverse receiving water toxicity impacts from effluent discharge. However, demonstration of toxicity in laboratory testing is not synonymous with toxicity in the receiving water at the discharge location with variable temperature, flow, suspended solids, organic matter, ultraviolet light irradiance, and the presence of reactive minerals (i.e., iron and manganese oxides). In short, there are many real world site-specific characteristics that define and determine the quality of the aquatic life habitat. Thus, equating toxicity in WET testing with demonstrated adverse impacts in the receiving water is overly restrictive and there is room for the Regional Water Board to acknowledge the inherent challenges that arise when investigating WET toxicity.

The District believes that IC25 is a more dependable approximation of the no effect level and a better indication of the ability to see an effect in the toxicity test. This perspective is supported by USEPA. USEPA has consistently recommended the use of point estimates (e.g., IC25) rather than hypothesis tests to analyze whole effluent toxicity data since the issuance of the *Technical Support Document for Water Quality-based Toxics Control* in 1991. (TSD, EPA/505/2-90/001, page 6). The EPA's test methods manuals have consistently recommended the use of a point estimate method rather than the hypothesis method for the NPDES program. "NOTE: For the NPDES Permit Program, the point estimation techniques are the preferred statistical methods in calculating end points for effluent toxicity tests." [original emphasis] (USEPA 2002, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms*. 821–R-02-013). Furthermore, when using the point estimate approach, the test methods manual advises that: "*Thus the assessment of a "safe" concentration must be made from a biological standpoint rather than with a statistical test. In this instance, the biologist must determine some amount of adverse effect that is deemed to be "safe", in the sense that from a practical biological viewpoint it will not affect the normal propagation of fish and other aquatic life in receiving waters*."(USEPA 2002).

Based on the above, the District requests that the numeric monitoring trigger be modified as follows:

> **"*Numeric Monitoring Trigger.*** *The numeric toxicity monitoring trigger is > 1 TUc (where TUc = 100/NOEC and 100/IC25)*."

As such, accelerated monitoring and TREs would be initiated if bioassay results show > 1 TUc for both 100/NOEC and 100/IC25.

EPA's *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)* (821-B-00-004) (USEPA 2000) provides guidance on hypothesis testing when sublethal endpoints are measured and no dilution credit is allowed due to low flow in receiving water. Thus, the District requests the following clarification be added in the MRP, if the monitoring trigger remains based on a hypothesis test (i.e., NOEC rather than a point estimate):

"5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002. The alpha level for chronic WET bioassays may be 0.01 provided that, should the percent minimum significant difference (PMSD) not exceed the recommended PMSD for test sensitivity in the Test Method, the results should be reported using the standard alpha of 0.05."

RESPONSE: The NOEC method is required in NPDES permits to calculate numeric chronic toxic monitoring trigger (1 Toxicity Unit = 100/NOEC) for whole effluent toxicity (WET) testing because the NOEC endpoint represents no toxicity. This is consistent with the Regional Water Board Basin Plan's narrative toxicity objective and toxicity testing required in the other Regional Water Board's regulatory programs. The NOEC value is used in WET testing to determine the monitoring trigger for chronic toxicity that determines whether follow-up accelerated monitoring and corresponding toxicity identification and reduction evaluations (TIE/TRE) are necessary. Use of the NOEC value to determine the numerical trigger is more likely to detect toxicity than the point estimate, IC25. Other statistical methodologies, including IC25, may be appropriate for the follow-up TIE/TRE because the IC25 provides more precise information regarding the cause of the toxicity. The tentative NPDES permit does not require the use of NOEC value for the follow-up TIE/TRE, and allows the chronic WET testing results to be expressed using both the NOEC value and the IC25 value.

The Discharger requested clarification to be included in the MRP if the monitoring trigger remains based on a hypothesis test (i.e., NOEC rather than a point estimate). The proposed language is already required by the proposed permit and therefore the clarification is not necessary. Thus, the proposed language has not been included.

Discharger Comment No. 6. p. 22, C, i. – The District requests the following edit for clarity.

"i. The Discharger shall provide continuous, reliable monitoring of flow, UV transmittance, UV dose~~power~~, and turbidity."

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 7. p. 23, iii. – The District requests the following edit for clarity.

"iii. The UV transmittance (at 254 nanometers) in the wastewater entering~~exiting~~ the UV disinfection system shall not fall below 55 percent of maximum at any time."

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 8. p. 28, Compliance Determination - Chronic Whole Effluent Toxicity Effluent Limitation – The District requests that the following compliance language be added to the Order to address compliance with the chronic whole effluent toxicity limitation. This language is the same as that adopted on October 24, 2008 in the City of Stockton permit.

"Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with effluent limitation IV.A.1.a.iv and IV.A.1.b.iv for chronic whole effluent toxicity."

RESPONSE: The proposed Order contained a narrative limitation for chronic toxicity that stated "*The effluent discharge shall not cause chronic toxicity in the receiving water*." Regional Water Board staff finds that this narrative limitation does not adequately address the presence of toxicity in the effluent. Therefore, based on the State Water Board's Water Quality Order for the City of Davis (WQO 2008-0008) and recently adopted Orders by the Regional Water Board, the narrative chronic toxicity effluent limitation in section IV.A.1.a.iv and IV.A.1.b.iv of the proposed Order has been revised as follows:

"*iv.* ***Chronic Whole Effluent Toxicity.*** *There shall be no chronic toxicity in the effluent discharge*."

In addition, the following compliance determination language has been included at section VII.G of the proposed Order, as requested by the Discharger:

"*G.* ***Chronic Whole Effluent Toxicity Effluent Limitation.*** *Compliance with the accelerated monitoring and TRE/TIE provisions contained at section*

VI.C.2.a shall constitute compliance with effluent limitation IV.A.1.a.iv and IV.A.1.b.iv for chronic whole effluent toxicity."

Discharger Comment No. 9. p. E-1, I.B. General Monitoring Provisions – The District requests the following edit:

"Analyses that cannot be transported to, and measured by, a certified laboratory within the maximum allowable holding time (e.g., measurement of pH within 15~~30~~ minutes per Standard Methods) can be performed in a non-certified laboratory providing a Quality Assurance-Quality Control Program is instituted by the laboratory."

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 10. p. E-1, Item C – This sub-section should be modified as follows as the first sentence is already stated in item B of this section. As written, it conflicts with item B because it does not clarify that a non-certified laboratory may be used provided it has a QA/QC program.

"C. ~~All analyses shall be performed in a laboratory certified to perform such analyses by the California Department of Health Services.~~ Laboratories that perform sample analyses shall be identified in all monitoring reports*."*

RESPONSE: Regional Water Board staff acknowledges that analyses for some constituents cannot be transported to, and measured by, a certified laboratory within the maximum allowable holding time. Therefore, this provision has been modified to state that "*All analysis shall be performed in a laboratory certified to perform such analyses by the California DPH, with the exception of pH and temperature."*

Discharger Comment No. 11. p. E-4, New Footnote – The District requests the following footnote be added to Table E-3.

"[10] Continuous monitoring equipment may be temporarily taken offline for routine maintenance, calibration, cleaning or repairs. Times that meters are offline for maintenance, calibration, cleaning or repairs shall be noted in monthly self monitoring reports. If, for any reason, a meter is taken offline for a day or more, a minimum of one measurement/day shall be made for the parameter by other means and reported."

RESPONSE: Footnote 1 to Table E-3 already addresses continuous monitoring requirements, and states "*For continuous analyzers used to monitor in determining an average effluent concentration, the Discharger shall report documented routine meter maintenance activities, including date, time of day, and duration, in which the analyzer(s) is not in operation to record monitoring information*." Constituents listed in Table E-3 which require

continuous monitoring include flow and turbidity. For flow, continuous analyzers are not necessarily used to provide average effluent concentration. Therefore, Footnote 1 to Table E-3 has been modified as follows: "*For continuous analyzers ~~used to monitor in determining an average effluent concentration~~, the Discharger shall report documented routine meter maintenance activities, including date, time of day, and duration, in which the analyzer(s) is not in operation ~~to record monitoring information~~*." Turbidity monitoring is necessary to monitor the performance of the UV disinfection system and is required in section IX.C of the proposed Order. Turbidity monitoring is not necessary to determine compliance with an effluent limitation for turbidity. Therefore, the effluent monitoring requirements for turbidity contained in Table E-3 have been removed. The associated footnotes for continuous monitoring requirements for turbidity and for the location of the turbidity meter have been included in Table E-8.

Discharger Comment No. 12. p. E-9, B. Municipal Water Supply, 1. Monitoring Location SPL-001 – The District requests that the obligation for DCWWTP personnel to establish a municipal water supply monitoring station and collect EC and TDS data be removed from this Order. Board staff can simply request such data from the District's water supply personnel, when needed. Alternatively, the monitoring requirement can be simplified to indicate that EC and TDS data already being collected by the District be provided to Board staff quarterly.

RESPONSE: Table E-1 defines Monitoring Location SPL-001 as "*A location where a representative sample of the municipal water supply can be obtained*." Section IX.B.1 of the proposed MRP states "*The Discharger shall monitor the municipal water supply at SPL-001 as follows. A sampling station(s) shall be established where a representative sample of the municipal water supply can be obtained. Municipal water supply samples shall be collected at approximately the same time as effluent samples*." The second sentence of this paragraph is repetitive of the definition contained in Table E-1. Monitoring at the same time as the effluent is unnecessary to characterize the contributions of salinity to the Facility in the water supply. Therefore, the second and last sentence of this paragraph have been deleted.

The Discharger is the water supplier for the service area and has previously conducted monitoring for salinity in the water supply. However, monitoring is not conducted at a regular frequency. In order to provide sufficient data to characterize contributions of salinity to the Facility, quarterly monitoring is required in the proposed Order.

Discharger Comment No. 13. p. E-10, Table E-8 – The District requests that row 5 "UV Power Setting" be deleted from this table because the UV lamps installed at the DCWWTP are not adjustable. They are either on or off.

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 14. p. E-14, Table E-10 – Based on previous comments, the District requests that the first row – reporting requirements for "Salinity Reduction Goal" be deleted from this Order.

> **RESPONSE:** As discussed in response to Discharger Comment No. 4, Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 15. p. E-16-17, Annual Pretreatment Report – The overall report addressing items "a." through "h." is due by 28 February, annually. However, the permit states that a report on the compliance status of each industrial user be submitted within 21 days of the end of the year, annually (i.e., January 21st). Because the latter is a component of the larger pretreatment program annual report, the District requests that all components of the report requested (i.e., item "a." through "h.", p. E-1 through E-18) be included in a single annual report to be submitted by 28 February.

> **RESPONSE:** Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 16. p. F-13, Chlorination Language – The District requests the following edit for clarification:

> "No. R5-2002-0210, which discontinued the effluent limitations for chlorine residual and contained a prohibition of the use of chlorine and/or chlorine containing substances within the treatment process ~~and~~ that result in discharge of chlorine and/or chlorine containing substances into the receiving water. This prohibition has been retained in this Order."

> **RESPONSE:** Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 17. p. F-20, Ammonia – Deer Creek is an effluent dominated water body, and the highest concentrations of ammonia would be expected when there is little to no dilution flow provided by Deer Creek. As such, ammonia effluent limitations protective of critical conditions in the receiving water should be based on effluent pH and temperature data (e.g., R5-2008-0055 and R5-2008-0006). The values calculated in the Tentative Order are in fact based on effluent data, but are erroneously referred to as downstream Deer Creek data. The Discharger requests the following correction:

> Since Deer Creek is an effluent dominated waterbody, acute and chronic toxicity criteria were calculated using effluent pH and temperature. The maximum permitted effluent pH is 8.5, as the site-specific Basin Plan objective for pH in the Deer Creek is the range of 6.5 to 8.5. In order to protect against the worst-case short-term exposure of an organism, a pH value of 8.5 was used to derive the acute criterion. The resulting acute criterion is 2.14 mg/L.

Effluent ~~Downstream Deer Creek~~ temperature and pH data from the Discharger's monthly monitoring reports from January 2005 through December 2007 were used to develop the chronic criteria. Using effluent ~~downstream receiving water~~ data, the 30-day CCC was calculated for each day when temperature and pH were measured. The resulting lowest 99.9% 30-day CCC is 1.65 mg/L (as N). The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 1.65 mg/L (as N), the 4-day average concentration that should not be exceeded is 4.13 mg/L (as N).

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 18. p. F-31, WQBEL Calculations for Ammonia – USEPA's Ambient Water Quality Criteria for ammonia recommends acute, 4-day chronic, and 30-day chronic criteria. To clarify that all three criteria were considered when deriving the ammonia effluent limitations, the District requests the following additions to Table F-5:

Table F-5. WQBEL Calculations for Ammonia

	Acute	4-Day Chronic	30-Day Chronic
Criteria (mg/L) [1]	2.14	4.13	1.65
Dilution Credit	No Dilution	No Dilution	No Dilution
ECA	2.14	4.13	1.65
ECA Multiplier	0.32	0.53	0.78
LTA [2]	0.68	2.18	1.29
AMEL Multiplier (95th%)	1.55	[3]	[3]
AMEL (mg/L)	**1.1**	[3]	[3]
MDEL Multiplier (99th%)	3.11	[3]	[3]
MDEL (mg/L)	**2.1**	[3]	[3]

[1] USEPA Ambient Water Quality Criteria.
[2] LTA developed based on Acute and Chronic ECA Multipliers calculated at 99th percentile level per sections 5.4.1 and 5.5.4 of TSD.
[3] Limitations based on acute LTA ($LTA_{acute} < LTA_{4\text{-day chronic}} < LTA_{30\text{-day chronic}}$).

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 19. p. F-33, Chronic Aquatic Toxicity – The summary of quarterly whole effluent chronic toxicity results only indicates results when the endpoint was greater than 1 TUc. However, the text and table do not indicate this nor discuss the total number of bioassay results. Thus, the District requests the following corrections and clarifications:

b. **Chronic Aquatic Toxicity.** The Discharger performed twelve quarterly whole effluent chronic toxicity tests with 5 different test endpoints for a total of 60 bioassay results for the period January 2005 through December 2007. Of those chronic toxicity test results, the ~~The~~ following table summarizes the bioassay results ~~of quarterly whole effluent~~

~~chronic toxicity testing~~ when the endpoint was greater than 1 TUc ~~performed by the Discharger from January 2005 through December 2007~~.

Table F-8. Summary of Chronic Aquatic Toxicity Results Greater than 1 TUc

Date	Species	Test Endpoint	Result (TUc)
23 October 2007	*Pimephales promelas*	Survival	8
23 October 2007	*Pimephales promelas*	Growth	8
23 October 2007	*Ceriodaphnia Dubia*	Reproduction	8
20 November 2007	*Pimephales promelas*	Survival	1.3
20 November 2007	*Pimephales promelas*	Growth	1.3
20 November 2007	*Ceriodaphnia Dubia*	Reproduction	8
15 January 2008	*Pimephales promelas*	Survival	2
15 January 2008	*Pimephales promelas*	Growth	2

RESPONSE: Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

Discharger Comment No. 20. p. F-47, d. Salinity – The District requests the following edits, based on previous comments herein.

"d. **Salinity.** ~~Because conversion to UV disinfection from sodium-based chlorination and dechlorination at the Facility occurred in August 2006, sufficient representative monitoring data is not available to calculate a final effluent limitation for salinity.~~ This Order requires weekly effluent monitoring of for electrical conductivity. If the Regional Water Board completes development of a new salinity policy for the Central Valley ~~or if sufficient monitoring data is collected to characterize salinity in the effluent~~, this Order may be reopened to include final effluent limitations for salinity."

RESPONSE: As discussed in response to Discharger Comment No. 4, Regional Water Board staff concurs and has made the suggested modifications to the proposed Order.

CALIFORNIA SPORTFISHING PROTECTION ALLIANCE COMMENTS

CSPA Comment No. 1. The Proposed Permit Fails to Include Limitations that are Protective of the Municipal and Domestic Beneficial Uses of the Ephemeral Receiving Stream Contrary to Federal Regulations 40 CFR 122.4, 122.44(d), the California Water Code, Section 13377 and the Basin Plan.

The proposed Permit contains Findings that municipal and domestic supply (MUN) are beneficial uses of the receiving stream as designated in the Sacramento San Joaquin River Basins Water Quality Control Plan (Basin Plan). The proposed Permit does not discuss

protection of the MUN beneficial use of the receiving stream; specifically for pathogens. The proposed Permit Fact Sheet, page F-7, confirms that the State Water Board has issued water rights to existing water users along Deer Creek and the Cosumnes River downstream of the discharge for domestic and irrigation uses. Federal Regulation, 40 CFR 122.4 (a), (d) and (g) require that no permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA, or regulations promulgated under the CWA, when imposition of conditions cannot ensure compliance with applicable water quality requirements and for any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA. Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

In requiring tertiary treatment the proposed Permit states that: "Title 22 and other recommendations of the California Department of Public Health (PDH; formerly the Department of Health Services) generally recommend that it is necessary to treat wastewater to a tertiary level or provide 20:1 dilution for secondary treated wastewater in order to protect the public health for contact recreational activities or the irrigation of food crops." The proposed Permit's Fact Sheet, Pathogens, goes into greater detail in citing the requirements of California Code of Regulations (CCR), Division 4, Chapter 3 (Title 22) to protect the public health for the domestic wastewater discharge to surface waters. The proposed Permit does not discuss protection of the MUN beneficial use of the surface water with respect to pathogens.

Direct ingestion is a more sensitive use of water than contact recreation uses or eating food crops irrigated with treated sewage. In 1987 DPH issued the *Uniform Guidelines for the Disinfection of Wastewater* (Uniform Guidelines) as recommendations to the Regional Water Quality Control Boards regarding disinfection requirements for wastewater discharges to surface waters. The Uniform Guidelines recommend a "no discharge" of treated domestic wastewater to freshwater streams used for domestic water supply. Where is not possible to prevent a wastewater discharge: the Uniform Guidelines recommend that no discharge be allowed unless a minimum of a twenty-to-one in stream dilution is available. The DPH has reiterated the recommendations of the Uniform Guidelines to the Central Valley Regional Board on numerous occasions: specifically a 1 July 2003 letter to the Executive Officer (Thomas Pinkos); a 28 September 2000 Memorandum to regional and district engineers from Jeff Stone; and cite specific recommendations for the City of Jackson's wastewater discharge. A discharge of tertiary treated domestic wastewater to an ephemeral stream is not protective of the domestic and municipal beneficial uses of the receiving stream.

Instead of protecting the beneficial use by requiring that the facility may only discharge tertiary treated wastes when sufficient dilution is available, the proposed Permit steps further backward

by relaxing discharge limitations to secondary treatment standards when a 20-to-1 dilution is available in the receiving stream.

CCR Title 22 is cited in the proposed Permit as the source of information for requiring tertiary treatment to protect the contact recreation and food crop irrigation beneficial uses of the receiving stream. CCR Title 22 does not discuss or provide a level of treatment adequate to protect drinking water. To the contrary, Title 22 contains numerous requirements (60310) to prevent cross connections with potable water supplies, setback requirements from domestic supplies and wells, and warning signs not to drink the water: “RECLAIMED WATER DO NOT DRINK” verifying that tertiary treated domestic wastewater in not fit for human consumption. Tertiary treated wastewater discharged to ephemeral streams is not of adequate quality for municipal use and is therefore not protective of the DOM beneficial use.

The Basin Plan, Implementation, Page IV-24-00, prohibits the discharge of wastewater to low flow streams as a permanent means of disposal and requires the evaluation of land disposal alternatives, Implementation, Page IV-15.00, Policies and Plans (2) Wastewater Reuse Policy. The Basin Plan, Implementation, Page IV-24-00, Regional Water Board prohibitions, states that: “Water bodies for which the Regional Water Board has held that the direct discharge of waste is inappropriate as a permanent disposal method include sloughs and streams with intermittent flow or limited dilution capacity.” The proposed Permit characterizes the receiving stream as low flow, or ephemeral, with no available dilution. The proposed Permit does not discuss any efforts to eliminate the discharge to surface water and compliance with the Basin Plan Prohibition. Federal Regulation 40 CFR 122.4 states that no permit shall be issued for any discharge when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA and are inconsistent with a plan or plan amendment.

The proposed Permit does not protect the drinking water beneficial use of the receiving stream as is required by Federal Regulations 40 CFR 122.4, 122.44(d) and the California Water Code, Section 13377 and in accordance with these requirements cannot be issued. At a minimum, the permit must be amended to require that the Discharger develop a workplan to eliminate the wastewater discharge to surface water in accordance with the Basin Plan.

RESPONSE: Regional Water Board staff disagrees. The proposed permit is fully protective of the municipal and domestic water supply (MUN) beneficial use of the receiving water. The commenter claims that for pathogens, the most sensitive beneficial is MUN, due to the direct ingestion of the water, and the proposed permit only discusses protection of the contact recreation (REC-1) and agricultural water supply (AGR) beneficial uses with respect to pathogens.

The commenter states, "The proposed Permit Fact Sheet, page F-7, confirms that the State Water Board has issued water rights to existing water users along Deer Creek and the Cosumnes River downstream of the discharge for domestic and irrigation uses." The State Water Board's Water Rights Information Management System (eWRIMS) indicates that all appropriations on Deer Creek downstream of the Facility, and on the Cosumnes River near (and downstream of) the Deer Creek confluence, are for agricultural use only. The Fact Sheet has been revised to correct the reference to domestic water rights. In

addition, the eWRIMS system notes three Statements of Diversion for riparian uses, which do not specify the type of use, but these statements all predate DHS's 1999 recommendations.

There are no numeric water quality objectives applicable to the receiving water for pathogens for the protection of MUN. The only water quality objective that applies to surface waters is the bacteria objective in the Basin Plan, which states, "*In waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.*" The proposed Order includes effluent limitations for pathogens based on recommendations by DPH for protection of REC-1 and AGR. These effluent limitations are also fully protective of the MUN use.

In 1987, the Department of Health Services (DHS) (now the Department of Public Health, or DPH) issued the "Uniform Guidelines for the Disinfection of Wastewater" (Uniform Guidelines), which included recommendations to the Regional Water Board regarding the appropriate level of disinfection for wastewater discharges to surface waters. The DHS provided a letter dated 1 July 2003 that included clarification of the recommendations. The letter states, "*A filtered and disinfected effluent should be required in situations where critical beneficial uses (i.e. food crop irrigation or body contact recreation) are made of the receiving waters unless a 20:1 dilution ration (DR) is available. In these circumstances, a secondary, 23 MPN discharge is acceptable.*" DHS considers such discharges to be essentially pathogen-free. (Letter from David P. Spath to Gary Carlton (16 September 1999) p. 3 and Enclosure to same, p. 6.) The proposed Order is consistent with these recommendations, considering site-specific factors. Title 22 is not directly applicable to surface waters; however, the Regional Water Board has found that it is appropriate to apply an equivalent level of treatment to that required by DPH's reclamation criteria when there is less than 20:1 dilution (receiving water:effluent) because the receiving water may be used for irrigation of agricultural land (AGR) and/or for contact recreation (REC-1) purposes.

In site-specific situations[1] where a discharge is occurring to a stream with a nearby water intake used as a domestic water supply without treatment, the DPH has recommended the same Title 22 tertiary treatment requirements for the protection of MUN, as well as protecting REC-1 and AGR. However, DPH has recommended a 20:1 dilution ratio in addition to the Title 22 tertiary treatment requirement to protect the domestic water supply only where there are existing users of raw water near the treatment plant outfall. In this case, there are no such known uses in the vicinity of the discharge, so tertiary treatment plus 20:1 dilution is not necessary to protect the MUN, REC-1 or AGR uses.

[1] For example, see Waste Discharge Requirements Order No. R5-2007-0133 (NPDES No. CA0079391) for the City of Jackson Wastewater Treatment Plant, Amador County.

The chemical constituents narrative objective states, “Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses.” The narrative toxicity objective states, “All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.” When necessary, the Regional Water Board adopts numeric effluent limitations to implement these objectives. The *Policy for Application of Water Quality Objectives* states, “To evaluate compliance with the narrative water quality objectives, the Regional Water Board considers, on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations (e.g., State Water Board, California Department of Health Services, California Office of Environmental Health Hazard Assessment, California Department of Toxic Substances Control, University of California Cooperative Extension, California Department of Fish and Game, USEPA, U.S. Food and Drug Administration, National Academy of Sciences, U.S. Fish and Wildlife Service, Food and Agricultural Organization of the United Nations). In considering such criteria, the Board evaluates whether the specific numerical criteria, which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective.”

In this case, however, there are no known users of raw water (i.e., existing uses of untreated domestic water) in the vicinity of the discharge, and there is no direct evidence of beneficial use impacts. For public water supplies, wastewater discharges do not require drinking water treatment plants to add any additional treatment, since state and federal law require residual chlorine and/or ultraviolet disinfection of surface water. (*See, e.g.,* Surface Water Treatment Rule, 40 C.F.R. Part 141, Subpart H; Cal. Code of Regs. Title 22, section 64447.) Wastewater discharges do not interfere with such treatment processes. In this case, moreover, there are no public drinking water intakes near the treatment plant outfall. Thus, a 20:1 requirement is not required. When 20:1 dilution is unavailable, treating pathogens to a level more stringent than tertiary treatment would produce a chlorine residual in the effluent that would be toxic to aquatic life in the receiving water. Pathogens are not bio-accumulative, so discharges at the permitted levels do not threaten any potential uses of the receiving water for untreated domestic use. Therefore, the requirement to implement tertiary treatment only when 20:1 dilution is not available adequately protects beneficial uses and is appropriate for this site under the case-by-case approach described in the *Policy for Application of Water Quality Objectives*.

The State Water Board has already determined that tertiary treatment is not necessary when dilution exceeds 20:1. (Order WQ 2004-0010 (City of Woodland).) The City of Woodland order addressed REC-1 and not MUN, which was not an existing use of the receiving water. However, the State Water Board has twice concluded that it is appropriate for the Regional Water Board to rely on DHS (now DPH) guidance in determining the level of treatment necessary to protect human health. (*Id.,* p. 11; Order WQ 2002-0016 (City of Turlock), p. 11.)

In summary, there are no numeric water quality objectives for pathogens for the protection of MUN. Therefore, the Regional Water Board, when developing NPDES permits, implements recommendations by DPH for the appropriate disinfection requirements for the protection of MUN, as well as REC-1 and AGR. The disinfection requirements in the proposed Order implement the DPH recommendations and are fully protective of the beneficial uses of the receiving water.

The commenter also states that the proposed Order relaxes tertiary treatment requirements. This is incorrect. The previous permit also allowed secondary treatment when 20:1 dilution is available. As noted in the Fact Sheet, such dilution is infrequently available.

Finally, the commenter is incorrect in characterizing the Basin Plan language regarding discharges to ephemeral streams as a prohibition. The Basin Plan expresses a strong policy against using ephemeral streams as a permanent discharge location where alternatives are available. However, such discharges are not prohibited unless the Regional Water Board adopts a site-specific or water-body-specific prohibition. The discharge is consistent with all applicable provisions of the Basin Plan.

CSPA Comment No. 2. The proposed Permit contains an Incorrect Statement Regarding the Impact of 303 (d) Designation of Downstream Waters.

Proposed Permit Finding No. H states in part that: "While Deer Creek is not directly affected by the downstream conditions in the Cosumnes River and the Delta, Effluent Limitations for some of these constituents are included in this Order…" The point of listing downstream impaired waters is that the discharge of pollutants from the Deer Creek can impact 303(d) designated downstream waters; not that downstream impaired waters will impact the sewage discharge. As an example; the Effluent Limitations for nitrate and nitrite were present in the existing NPDES permit but have been removed from the proposed Permit. These nitrogen substances are nutrients which may impact the downstream waters which are impacted for organic enrichment. It is suggested that the sentence be removed or modified.

> **RESPONSE:** Regional Water Board staff concurs and has modified the statement in the proposed Order as follows:
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> "~~*While Deer Creek is not directly affected by the downstream conditions in the Cosumnes River and the Delta,*~~ *Effluent* ~~*L*~~*limitations for some of these constituents are included in this Order*."

CSPA Comment No. 3. The proposed Permit fails to contain mass-based effluent limits for zinc as required by Federal Regulations 40 CFR 122.45(b).

Federal Regulation, 40 CFR 122.45 (b) requires that in the case of POTWs, permit Effluent Limitations, standards, or prohibitions shall be based on design flow. Concentration is not a

basis for design flow. Mass limitations are concentration multiplied by the design flow and therefore meet the regulatory requirement.

Section 5.7.1 of U.S. EPA's *Technical Support Document for Water Quality Based Toxics Control* (TSD, EPA/505/2-90-001) states with regard to mass-based Effluent Limits:

> "Mass-based effluent limits are required by NPDES regulations at 40 CFR 122.45(f). The regulation requires that all pollutants limited in NPDES permits have limits, standards, or prohibitions expressed in terms of mass with three exceptions, including one for pollutants that cannot be expressed appropriately by mass. Examples of such pollutants are pH, temperature, radiation, and whole effluent toxicity. Mass limitations in terms of pounds per day or kilograms per day can be calculated for all chemical-specific toxics such as chlorine or chromium. Mass-based limits should be calculated using concentration limits at critical flows. For example, a permit limit of 10 mg/l of cadmium discharged at an average rate of 1 million gallons per day also would contain a limit of 38 kilograms/day of cadmium.
>
> Mass based limits are particularly important for control of bioconcentratable pollutants. Concentration based limits will not adequately control discharges of these pollutants if the effluent concentrations are below detection levels. For these pollutants, controlling mass loadings to the receiving water is critical for preventing adverse environmental impacts.
>
> However, mass-based effluent limits alone may not assure attainment of water quality standards in waters with low dilution. In these waters, the quantity of effluent discharged has a strong effect on the instream dilution and therefore upon the RWC. At the extreme case of a stream that is 100 percent effluent, it is the effluent concentration rather than the mass discharge that dictates the instream concentration. Therefore, EPA recommends that permit limits on both mass and concentration be specified for effluents discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards."

Federal Regulations, 40 CFR 122.45 (f), states the following with regard to mass limitations:

> "(1) all pollutants limited in permits shall have limitations, standards, or prohibitions expressed in terms of mass except:
>
> (i) For pH, temperature, radiation or other pollutants which cannot be expressed by mass;
> (ii) When applicable standards and limitations are expressed in terms of other units of measurement; or
> (iii) If in establishing permit limitations on a case-by-case basis under 125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.
>
> (2) Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations."

Federal Regulations, 40 CFR 122.45 (B)(1), states the following: "In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow." Traditional wastewater treatment plant design utilizes average dry weather flow rates for organic, individual constituent, loading rates and peak wet weather flow rates for hydraulic design of pipes, weir overflow rates, and pumps. For POTWs priority pollutants, such as metals, have traditionally been reduced by the reduction of solids from the wastestream, incidental to treatment for organic material. Following adoption of the CTR, compliance with priority pollutants is of critical importance and systems need to utilize loading rates of individual constituents in the WWTP design process. It is highly likely that the principal design parameters for individual priority pollutant removal will be based on mass, making mass based Effluent Limitations critically important to compliance.

In addition to the above citations, on June 26th 2006 U.S. EPA, Mr. Douglas Eberhardt, Chief of the CWA Standards and Permits Office, sent a letter to Dave Carlson at the Central Valley Regional Water Quality Control Board strongly recommending that NPDES permit effluent limitations be expressed in terms of mass as well as concentration.

RESPONSE: 40 CFR SEC 122.25(f) states the following:

"*Mass limitations. (1) All pollutants limited in permits shall have limitations, standards or prohibitions expressed in terms of mass except:*

(i) For pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass;

(ii) When applicable standards and limitations are expressed in terms of other units of measurement; or

(iii) If in establishing permit limitations on a case-by-case basis under §125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.

(2) Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations."

40 CFR section 122.25(f)(1)(ii) states that mass limitations are not required when applicable standards are expressed in terms of other units of measurement. The numerical effluent limitations for zinc in the proposed Order are based on water quality standards and objectives. These are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with Federal Regulations.

> Mass limitations for oxygen demanding substances, bioaccumulative substances, and constituents with an associated 303(d) listing are included in the proposed Order. The proposed Order includes mass limitations for 1) ammonia since it is a oxygen demanding substance, and 2) mercury since it is a bioaccumulative constituent and a TMDL is pending. For those pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based (i.e., zinc), mass-based effluent limitations are not included in this Order.

CSPA Comment No. 4. The proposed Permit contains an Effluent Limitation for acute toxicity that allows mortality to aquatic life that exceeds the Basin Plan water quality objective and does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) or the Clean Water Act.

Under the federal Clean Water Act (CWA), states are required to classify surface waters by *uses* – the beneficial purposes provided by the waterbody. For example, a waterbody may be designated as a drinking water source, or for supporting the growth and propagation of aquatic life, or for allowing contact recreation, or as a water source for industrial activities, or all of the above. States must then adopt criteria – numeric and narrative limits on pollution, sufficient to protect the uses assigned to the waterbody. Federal regulations, at 40 CFR 122.44 (d)(1)(i), adopted to require implementation of the CWA, require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The Water Quality Control Plan for the Sacramento/ San Joaquin River Basins (Basin Plan), Water Quality Objectives (Page III-8.00), for Toxicity is a narrative criteria which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This section of the Basin Plan further states, in part that, compliance with this objective will be determined by analysis of indicator organisms (toxicity tests).

The proposed Permit requires that the Discharger conduct acute toxicity tests and states that compliance with the toxicity objective will be determined by analysis of indicator organisms. However, the Tentative Permit contains a discharge limitation that allows 30% mortality (70% survival) of fish species in any given toxicity test. Surely, mortality is a detrimental physiological response to aquatic life.

For an ephemeral or low flow stream, allowing 30% mortality in acute toxicity tests allows that same level of mortality in the receiving stream, in violation of federal regulations and contributes to exceedance of the Basin Plan's narrative water quality objective for toxicity. In receiving streams where dilution may be available the primary mixing area is commonly referred to as the zone of initial dilution, or ZID. Within the ZID acute aquatic life criteria are exceeded. To satisfy the CWA prohibition against the discharge of toxic pollutants in toxic amounts, regulators assume that if the ZID is small, significant numbers of aquatic organisms will not be present in the ZID long enough to encounter acutely toxic conditions. The allowance of 30% mortality will result in acute toxicity within the ZID. Before the discharge can be allowed a complete mixing zone analysis is required in accordance with the Basin Plan and the *Policy for Implementation of*

Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (SIP) to show that discharge limitations prevent toxicity; such an analysis has not been completed. CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy. The State Board has adopted the SIP and the Regional Board is required to the Policy.

US EPA's *Technical Support Document for Water Quality-based Toxics Control* states, on page 104, that:

> "When setting a whole effluent toxicity limit to protect against acute effects, some permitting authorities use an end-of-pipe approach. Typically these limits are established as an LC50>100% effluent at the end of the pipe. These limits are routinely set without any consideration as to the fate of the effluent and the concentrations of toxicant(s) after the discharge enters the receiving water. Limits derived in this way are not water quality based limits and suffer from significant deficiencies since the toxicity of a pollutant depends mostly upon concentration, duration of exposure, and repetitiveness of the exposure. This is especially true in effluent dominated waters. For example, an effluent that has an LC50=100% contains enough toxicity to be lethal up to 50% of the test organisms. If the effluent is discharged to a low flow receiving waterbody that provides no more than a three fold dilution at the critical flow, significant mortality can occur in the receiving water. Furthermore, such a limit could not assure protection against chronic effects in the receiving waterbody. Chronic effects could occur if the dilution in the receiving water multiplied by the acute to chronic ratio is greater than 100 percent. Therefore, in effluent dominated situations, limits set using this approach may be severely underprotective. In contrast, whole effluent toxicity limits set using this approach in very high receiving water flow conditions may be overly restrictive."

Following US EPA's rationale the limitations of allowing 70% survival (30% mortality) in acute toxicity tests, as is the case in the cited LC50, will result in the allowance of toxic discharges to ephemeral streams, which is representative of the receiving waters at Davis. While the State and Regional Board's method of prescribing an effluent limitation of 70% percent survival may be protective in waterbodies with significant dilution; such a limitation should be subject to a complete mixing zone analysis. For an ephemeral receiving stream a mixing zone analysis would not be applicable under worst case dry stream conditions. The Order should be revised to require the Regional Board to prohibit acute toxicity (100% survival as compared to the laboratory control) in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i).

With regard to WET testing variability; US EPA's Technical Support Document for Water Quality-based Toxics Control states, on page 11, that:

> "In summary, whole effluent toxicity testing can represent practical tests that estimate potential receiving water impacts. Permit limits that are developed correctly from whole effluent toxicity tests should protect biota if the discharged effluent meets the limits. *It is important not confuse permit limit variability with toxicity test variability*" (emphasis added)

The proposed Permit must be revised to prohibit acute toxicity, require 100% survival in toxicity tests, in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i), the CWA, the SIP, the CWC and the Basin Plan.

> **RESPONSE:** The acute whole effluent toxicity limitations establish additional thresholds to control acute toxicity in the effluent: survival in one test no less than 70 percent and a median of no less than 90 percent survival in three consecutive tests. Some in-test mortality can occur by chance. To account for this, the acute toxicity test acceptability criteria allow 10 percent mortality (requires 90 percent survival) in the control. Thus, the acute toxicity limitations allow for some test variability, but impose ceilings for exceptional events (i.e., 30 percent mortality or more), and for repeat events (i.e., median of three events exceeding mortality of 10 percent). These effluent limitations are consistent with USEPA guidance document titled "Guidance for NPDES Permit Issuance", dated February 1994, which states the following:
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> "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*"
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> The appropriateness of the acute toxicity effluent limitations was also addressed in State Water Board WQO 2008-0008 for the City of Davis. In WQO 2008-0008, the State Water Board concurred with the Regional Water Board's implementation of the acute toxicity effluent limitations.

CSPA Comment No. 5. The proposed Permit replaces Effluent Limitations for turbidity which were present in the existing permit; contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the

requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJ based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant *if*: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

(l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)

(2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.

(i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:
(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;

(B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);

(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;

(D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or

(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

(ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

The proposed Permit Fact Sheet discusses Pathogens and states that the previous Order established Effluent Limitations for turbidity. Turbidity limitations are maintained in the proposed Permit but have been moved; they are no longer Effluent Limitations. The Fact Sheet Pathogen discussion states that infectious agents in sewage are bacteria, parasites and viruses and that tertiary treatment is necessary to effectively remove these agents. This discussion also states that turbidity limitations were originally established: "…to ensure that the treatment system was functioning properly and could meet the limits for total coliform organisms. This discussion is incorrect. First; coliform organism limitations are also an indicator parameter of the effectiveness of tertiary treatment. The coliform limitations in the proposed and past Permit are significantly lower than the Basin Plan Water Quality Objective and are based on the level of treatment recommended by the California Department of Public Health (DPH). Second; both the coliform limitations and turbidity are recommended by DPH as necessary to protect recreational and irrigated agricultural beneficial uses of the receiving water. Turbidity has no lesser standing than coliform organisms in the DPH recommendation. Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. There are no limitations for viruses and parasites in the proposed Permit which the Regional Board has indicated are necessary to protect the contact recreation and irrigated agricultural uses of the receiving water. Both coliform and turbidity limitations are treatment effectiveness indicators that the levels of bacteria viruses and parasites are adequately removed to protect the beneficial uses.

The proposed Permit also contains complex receiving water limitations for turbidity based on the turbidity performance of the wastewater treatment plant. Effluent Limitations are necessary to assure compliance with the water quality objective for turbidity. Provisions are not Effluent Limitations as required by the Federal Regulations. The turbidity Effluent Limitations must be restored in accordance with the Clean Water Act and Federal regulations 40 CFR 122.44 (l)(1).

RESPONSE: Regional Water Board staff disagrees. The prior turbidity limit was not based on the water quality objective for turbidity or the need to regulate turbidity in the receiving water. As stated in the Fact Sheet, turbidity testing is a quick way to determine the effectiveness of the treatment filter performance, and to signal the Discharger to implement operational procedures to correct deficiencies in the filter performance. Yet, higher effluent turbidity measurements do not necessarily indicate that the effluent discharge exceeds the water quality criteria/objectives for pathogens (i.e., bacteria, parasites, and viruses), which are the principal infectious agents that may be present in raw sewage. Therefore, UV System operational requirements for turbidity are appropriately included as a Provision in the proposed Order rather than effluent limitations. On the other hand, total coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing pathogens. Therefore, effluent limitations for total coliform organisms are necessary and have been included in the proposed Order. The previous Order included effluent limitations for turbidity. The operational turbidity requirements in the

proposed Order are an equivalent limitation that is not less stringent than the turbidity effluent limitations required in the previous Order No. R5-2002-0210. Therefore, the removal of the turbidity effluent limitations does not constitute backsliding. The revision in the turbidity limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16 because this Order imposes equivalent requirements to the prior permit and therefore does not allow degradation. Therefore, even if changing the limit from an effluent limitation to a provision did constitute backsliding from a water-quality based effluent limitation, it would be allowed under CWA sections 303(d)(4) and 402(o).

The discharge does not have reasonable potential to cause or contribute to an exceedance of any turbidity objective, so water quality based turbidity effluent limitations are not required. The proposed Order nevertheless includes receiving water limitations based on the Basin Plan's site specific turbidity objectives.

CSPA Comment No. 6. The proposed Permit Fact Sheet Contains an Incorrect or Incomplete Discussion of Design Flow Rates.

The proposed Permit Fact Sheet, page F-3, states that: "The facility has the design capacity to treat 13.1 mgd of unequalized peak daily flow and 10.3 mgd of equalized flow. Actual flows experienced during 2004, 2005 and 2006 are 3.06 mgd, 3.41 mgd, and 3.23 mgd, respectively; maximum daily flows were 7.45 mgd, 10.38 mgd, and 7.14 mgd, respectively." The flow parameters are not defined. Although uncertain; it appears that the peak hour, average dry weather and daily maximum flow rates are being listed, which would not be directly comparable. If the intent is to show that the facility has adequate capacity to treat wet weather flows; comparable flow rates might make the discussion more clear.

RESPONSE: The Discharger's Report of Waste Discharge (ROWD) summarizes the design capacities of the Facility as follows:

Parameter	Value (MGD)
Average Dry Weather Flow	3.6
Annual Average Flow	4.6
Average Day, Maximum Month Flow	9.1
Maximum Week Flow	10.3
Peak Day Flow (Unequalized)	13.1
Peak Hour Flow (Unequalized)	17.2
Peak Equalized Flow to Liquid Treatment	10.3

In addition, the ROWD reported the average daily flow rate and maximum daily flow rate for each of the previous 3 years, which were reported as follows:

	May 2004 – April 2005	May 2005 – April 2006	May 2006 – April 2007

Annual average daily flow (MGD)	3.06	3.41	3.23
Maximum daily flow rate (MGD)	7.45	10.38	7.14

The discussion in the Fact Sheet has been clarified as follows: "*The Facility has the design capacity to treat 3.6 MGD average dry weather flow, 13.1 MGD of unequalized peak daily flow, and 10.3 MGD of peak equalized flow to liquid treatment. Actual annual average daily flows experienced from May 2004 to April 2005, May 2005 to April 2006, and May 2006 to April 2007 ~~during 2004, 2005, and 2006~~ are 3.06 MGD, 3.41 MGD, and 3.23 MGD, respectively~~;~~. Actual maximum daily flows experienced for the same periods were 7.45 MGD, 10.38 MGD, and 7.14 MGD, respectively*."

CSPA Comment No. 7. The proposed Permit contains no Effluent Limitations for settleable solids and is less stringent than the existing permit contrary to the Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJ-based permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a

pollutant if: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

> (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)
>
> (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.
>
> (i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:

(A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;
(B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);
(C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;
(D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or
(E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).
(ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

The existing NPDES permit (R5-2002-0212) for this facility contained Effluent Limitations for settleable solids (SS). The most important physical characteristic of wastewater is its total solids content. SS are an approximate measure of the quantity of sludge that will be removed by sedimentation. Low, medium and high strength wastewaters will generally contain 5 ml/l, 10 ml/l and 20 ml/l of SS, respectively. Knowledge of SS parameters is critical for proper wastewater treatment plant design, evaluating sludge quantities, operation and troubleshooting. Excessive SS in the effluent discharge are typically indicative of process upset or overloading of the system. Failure to limit and monitor for SS limits the regulators ability to assess facility operations and determine compliance. Settleable matter is a water quality objective in the Basin Plan. Failure to include an Effluent Limitations for SS threatens to allow violation of the settleable matter receiving water limitation. We applaud the operators if indeed they did not violate the SS limitation during the life of the existing permit; this does not however remove the reasonable potential to cause exceedances in the future during system upsets or overloading; this also does not constitute “new” information as is required under the antibacksliding regulations.

RESPONSE: The previous permit, Order No. R5-2002-0210, included monthly average and daily maximum effluent limitations for settleable solids of 0.1 ml/L and 0.2 ml/L, respectively. Settleable solids was detected on 1 and 2 May 2007 at a concentration of 0.1 ml/L, based on 1,095 sampling events. These detections were below the applicable daily maximum limitation

of 0.2 ml/L contained in Order No. R5-2002-0210. The monthly average for May 2007 was also below the monthly average limitation of 0.1 ml/L. Settleable solids were not detected in the remaining 1,093 sampling events with a detection limit of 0.1 ml/L. Therefore, settleable solids no longer demonstrate reasonable potential to cause or contribute to an exceedance of a water quality objective. Additionally, the Discharger has upgraded the Facility, which is a state-of-the-art wastewater treatment plant that does not rely on settleable solids monitoring information to determine the level of performance necessary to comply with secondary or tertiary level effluent limitations. Therefore, effluent limitations and monitoring requirements are not necessary to evaluate the performance of the Facility.

The proposed Order removes the effluent limitations for settleable solids based on new information consistent with anti-backsliding requirements of 40 CFR 122.44(l)(2)(i)(B)(1). The proposed Order is adequately protective and contains a narrative receiving water limitations for settleable substances.

The Fact Sheet, at section IV.D.3, states that monitoring data over the term of Order No. R5-2002-0210 indicated that concentrations of settleable solids in the effluent from Discharge Point No. 001 were below the levels of detection for 1,095 sampling events between 1 January 2005 through 31 December 2007. However, as described above, this statement is inaccurate. The Fact Sheet at sections IV.C.3.p and IV.D.3 has been revised to reflect the detections of settleable solids and to indicate that effluent limitations and monitoring information is not required to determine the performance of the Facility.

CSPA Comment No. 8. The proposed Permit establishes Effluent Limitations for metals based on the hardness of the effluent as opposed to the ambient upstream receiving water hardness as required by Federal Regulations, the California Toxics Rule (CTR, 40 CFR 131.38(c)(4)).

Federal Regulation 40 CFR 131.38(c)(4) states that: “For purposes of calculating freshwater aquatic life criteria for metals from the equations in paragraph (b)(2) of this section, for waters with a hardness of 400 mg/l or less as calcium carbonate, the actual ambient hardness of the surface water shall be used in those equations.” (Emphasis added). The proposed Permit, however states that the effluent hardness was used to calculate Effluent Limitations for metals.

The proposed Permit Fact Sheet goes into great detail citing the Federal Regulation requiring the receiving water hardness be used to establish Effluent Limitations. Once again the public is subject to a bureaucrat “knowing better” and simply choosing to ignore very clear regulatory requirements. The Regional Board staff has chosen to deliberately ignore Federal Regulations placing themselves above the law. There are procedures for changing regulations if peer reviewed science indicates the need to do so, none of which have been followed. The proposed Permit failure to include Effluent Limitations for metals based on the actual ambient hardness of the surface water is contrary to the cited Federal Regulation and must be amended to comply with the cited regulatory requirement.

RESPONSE: Effluent limitations for the discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, "floating" effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. The SIP does not address how to determine hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water. The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO3), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.[2] The CTR does not define whether the term "ambient," as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. The Regional Water Board thus has considerable discretion in determining ambient hardness. (Order WQ 2008-0008 (City of Davis), p.10.) The City of Davis order allows the use of "downstream receiving water mixed hardness data" where reliable, representative data are available. (Id., p. 11.)

The point in the receiving water affected by the discharge is downstream of the discharge. As the effluent mixes with the receiving water, the hardness of the receiving water can change. Therefore, it is appropriate to use the ambient hardness downstream of the discharge that is a mixture of the effluent and receiving water for the determination of the CTR hardness-dependent metals criteria. Recent studies[3] indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not always protective of the receiving water under various mixing conditions (e.g., when the effluent hardness is less than the receiving water hardness). The studies evaluated the relationships between hardness and the CTR metals criterion that is calculated using the CTR metals equation.

The relationship between hardness and the resulting criterion in the CTR equation can exhibit either a downward-facing (i.e., concave downward) or an upward-facing (i.e., concave upward) curve depending on the values of criterion-specific constants.

For those contaminants where the regulatory criteria exhibit a concave downward relationship as a function of hardness (i.e., cadmium (chronic), chromium (III), copper, nickel, and zinc), use of the lowest recorded effluent

[2] See 40 CFR 131.38(c)(4)(i)

[3] "Developing Protective Hardness-Based Metal Effluent Limitations", Robert W. Emerick, Ph.D., P.E. and John E. Pedri, P.E.

hardness for establishment of water quality objectives is fully protective of all beneficial uses regardless of whether the effluent or receiving water hardness is higher. Use of the lowest recorded effluent hardness is also protective under all possible mixing conditions between the effluent and the receiving water (i.e., from high dilution to no dilution).

For those metals where the regulatory criteria exhibit a concave upward relationship as a function of hardness (i.e., cadmium (acute), lead, and silver (acute)), a water quality objective based on either the effluent hardness or the receiving water hardness alone, would not be protective under all mixing scenarios. Instead, both the hardness of the receiving water and the effluent is required to determine the reasonable worst-case ambient hardness.

CSPA Comment No. 9. The proposed Permit fails to contain an Effluent Limitation for aluminum in accordance with Federal Regulations 40 CFR 122.44, US EPA's interpretation of the regulation, and California Water Code, Section 13377.

Aluminum in the effluent has been measured as high as 150 µg/l. Aluminum has been shown to be toxic to freshwater aquatic life. Freshwater Aquatic habitat is a beneficial use of the receiving stream. The Basin Plan contains a narrative water quality objective for toxicity that states in part that "[a]*ll waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*" (narrative toxicity objective). U.S. EPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 mg/l and 750 mg/l, respectively.

The argument has been repeatedly made that US EPA's 87 ug/l chronic criterion was developed using low pH and hardness testing and should not be used. As is stated in EPA's development document, (Ambient Water Quality Criteria for Aluminum, EPA 440/5-86-008) the pH was in the range 6.5 to 6.6. The hardness was below 20 mg/l; however the proposed Permit does not contain a discharge limitation for hardness and numerous effluents and receiving waters within the Central Valley experience hardnesses at or below this level. Despite the Regional Board's contention that Valley waters have elevated hardness, the Sacramento River, at the Valley floor, has been sampled to have hardnesses as low as 39 mg/l CaCO3 by the USGS in February 1996 for the National Water Quality Assessment Program. A hardness of 39 mg/l is "low" as is a pH of 6.5; both of which are allowable under the proposed Permit. Simply based on these facts; the discharge presents a reasonable potential to exceed water quality criteria. Despite the hardness and pH values used in the development of the criteria; the simple fact is that U.S. EPA recommends that application of the ambient criteria as necessary to be protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria.

The effluent data has exceeded the chronic ambient water quality criteria of 87 ug/l. There is a reasonable potential for the discharge to exceed the criteria and cause toxicity within the receiving stream. An Effluent Limitation based on the chronic criteria is mandated by the Federal Regulations.

Based on information included in analytical laboratory reports submitted by the Discharger, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life, and, therefore to violate the Basin Plan's narrative toxicity objective.

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." US EPA has interpreted 40 CFR 122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Factsheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "where valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored." The California Water Code (CWC), Section 13377 states in part that: "…the state board or the regional boards shall…issue waste discharge requirements… which apply and ensure compliance with …water quality control plans, or for the protection of beneficial uses…" Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. A water quality standard for Failure to include an effluent limitation for aluminum in the proposed permit violates 40 CFR 122.44 and CWC 13377.

RESPONSE: CSPA argues that the chronic criterion (87 µg/L) recommended by the USEPA National Ambient Water Quality Criteria (NAWQC) for Aluminum should be applied for this discharge. Regional Water Board staff disagrees. The chronic criterion is based on studies conducted on waters with low pH (6.5 to 6.8 pH units) and hardness (<10 mg/L as $CaCO_3$). Monitoring data demonstrates that these conditions are not similar to those in Deer Creek, which consistently has an upstream pH greater than 8.0 (the minimum pH value out of 154 sample events was 8.0) and upstream hardness concentrations ranging from 71 mg/L to 290 mg/L. Consequently, the criterion is likely overly protective for this application. In the absence of an applicable chronic aquatic life criterion, the most stringent water quality criterion is the Secondary MCL - Consumer Acceptance Limit for aluminum of 200 µg/L. The MEC for aluminum was 150 µg/L, based on four samples collected between 23 March 2006 and 21 August 2007. Therefore, aluminum in the discharge does not exhibit reasonable potential to exceed the Secondary MCL. Thus, effluent limitations for aluminum are not included in the tentative Order. The tentative Order requires quarterly monitoring for aluminum along with priority pollutants and other constituents of concern during the third year of the permit term in order to further assess the potential to exceed water quality objectives.

CSPA Comment No. 10. The proposed Permit fails to contain an Effluent Limitation for bis (2-ethylhexyl) phthalate despite a clear reasonable potential to exceed waste quality standards in violation of Federal Regulations 40 CFR 122.44.

Bis(2-ethylhexyl)phthalate exceeds the CTR Water Quality Standard of 1.8 µg/l. Bis(2-ethylhexyl)phthalate has been detected in the wastewater effluent at 2.1 µg/l, also above the CTR Water Quality Standard. The proposed Permit Fact Sheet states that the receiving water sampling data for bis(2-ethylhexyl)phthalate is subject to error and is being discarded without any supporting documentation from the laboratory quality assurance/quality control (QA/QC) documents. To the contrary, bis(2- ethylhexyl)phthalate is used in the formation of plastics and has been documented in the available literature to be present in plastic pipes, bottles, bags and widely distributed throughout the environment. The Regional Board total disregards scientific methods, specifically sampling and laboratory QA/QC methodologies, in throwing out data points that would lead to a reasonable potential for a pollutant to exceed water quality standards when the burden should properly be placed on wastewater Dischargers to conduct proper sampling and analysis. The California Water Code (CWC), Section 13377 states in part that: "…the state board or the regional boards shall…issue waste discharge requirements…which apply and ensure compliance with …water quality control plans, or for the protection of beneficial uses…" Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Failure to include an effluent limitation for bis(2-ethylhexyl)phthalate in the proposed permit violates 40 CFR 122.44 and CWC 13377.

> **RESPONSE:** Regional Water Board Staff disagrees. As discussed in the Fact Sheet (Section IV.C.3.g.), there is insufficient information to conduct a reasonable potential analysis due to uncertainty in the sample results. Bis (2-ethylhexyl) phthalate samples can be easily contaminated when plastic containers are used or by the use of rubber gloves. The MEC for bis (2-ethylhexyl) phthalate was 2.1 µg/L, based on four samples collected between 23 March 2006 and 21 August 2007 (three samples were non-detect and the one detection was less than the reporting level of 2.5 µg/L). Upstream receiving water data were not available. Since bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment, it is uncertain whether reasonable potential actually exists and therefore effluent limitations for bis (2-ethylhexyl) phthalate are not being established at this time. Instead of limitations, additional monitoring has been established for bis (2-ethylhexyl) phthalate; should monitoring results indicate that the discharge has the reasonable potential to cause or contribute to an exceedance of a water quality standard, then the Order may be reopened and modified by adding an appropriate effluent limitation.

CSPA Comment No. 11. The proposed Permit contains no Effluent Limitations for nitrate and nitrite and is less stringent than the existing permit (R5-2002-0210) contrary to the

Antibacksliding requirements of the Clean Water Act and Federal Regulations, 40 CFR 122.44 (l)(1).

Under the Clean Water Act (CWA), point source dischargers are required to obtain federal discharge (NPDES) permits and to comply with water quality based effluent limits (WQBELs) in NPDES permits sufficient to make progress toward the achievement of water quality standards or goals. The antibacksliding and antidegradation rules clearly spell out the interest of Congress in achieving the CWA's goal of continued progress toward eliminating all pollutant discharges. Congress clearly chose an overriding environmental interest in clean water through discharge reduction, imposition of technological controls, and adoption of a rule against relaxation of limitations once they are established.

Upon permit reissuance, modification, or renewal, a discharger may seek a relaxation of permit limitations. However, according to the CWA, relaxation of a WQBEL is permissible only if the requirements of the antibacksliding rule are met. The antibacksliding regulations prohibit EPA from reissuing NPDES permits containing interim effluent limitations, standards or conditions less stringent than the final limits contained in the previous permit, with limited exceptions. These regulations also prohibit, with some exceptions, the reissuance of permits originally based on best professional judgment (BPJ) to incorporate the effluent guidelines promulgated under CWA §304(b), which would result in limits less stringent than those in the previous BPJbased permit. Congress statutorily ratified the general prohibition against backsliding by enacting §§402(o) and 303(d)(4) under the 1987 Amendments to the CWA. The amendments preserve present pollution control levels achieved by dischargers by prohibiting the adoption of less stringent effluent limitations than those already contained in their discharge permits, except in certain narrowly defined circumstances.

When attempting to backslide from WQBELs under either the antidegradation rule or an exception to the antibacksliding rule, relaxed permit limits must not result in a violation of applicable water quality standards. The general prohibition against backsliding found in §402(o)(1) of the Act contains several exceptions. Specifically, under §402(o)(2), a permit may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant if: (A) material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation; (B)(i) information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (ii) the Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under subsection (a)(1)(B) of this section; (C) a less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy [(e.g., Acts of God)]; (D) the permittee has received a permit modification under section 1311(c), 1311(g), 1311(h), 1311(i), 1311(k), 1311(n), or 1326(a) of this title; or (E) the permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit, and has properly operated and maintained the facilities, but has nevertheless been unable to achieve the previous effluent limitations, in which case the limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control

actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).

Even if a discharger can meet either the requirements of the antidegradation rule under §303(d)(4) or one of the statutory exceptions listed in §402(o)(2), there are still limitations as to how far a permit may be allowed to backslide. Section 402(o)(3) acts as a floor to restrict the extent to which BPJ and water quality-based permit limitations may be relaxed under the antibacksliding rule. Under this subsection, even if EPA allows a permit to backslide from its previous permit requirements, EPA may never allow the reissued permit to contain effluent limitations which are less stringent than the current effluent limitation guidelines for that pollutant, or which would cause the receiving waters to violate the applicable state water quality standard adopted under the authority of §303.49.

Federal regulations 40 CFR 122.44 (l)(1) have been adopted to implement the antibacksliding requirements of the CWA:

> (l) Reissued permits. (1) Except as provided in paragraph (l)(2) of this section when a permit is renewed or reissued, interim effluent limitations, standards or conditions must be at least as stringent as the final effluent limitations, standards, or conditions in the previous permit (unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued and would constitute cause for permit modification or revocation and reissuance under Sec. 122.62.)
>
> (2) In the case of effluent limitations established on the basis of Section 402(a)(1)(B) of the CWA, a permit may not be renewed, reissued, or modified on the basis of effluent guidelines promulgated under section 304(b) subsequent to the original issuance of such permit, to contain effluent limitations which are less stringent than the comparable effluent limitations in the previous permit.
>
> (i) Exceptions--A permit with respect to which paragraph (l)(2) of this section applies may be renewed, reissued, or modified to contain a less stringent effluent limitation applicable to a pollutant, if:
> (A) Material and substantial alterations or additions to the permitted facility occurred after permit issuance which justify the application of a less stringent effluent limitation;
> (B)(1) Information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance; or (2) The Administrator determines that technical mistakes or mistaken interpretations of law were made in issuing the permit under section 402(a)(1)(b);
> (C) A less stringent effluent limitation is necessary because of events over which the permittee has no control and for which there is no reasonably available remedy;
> (D) The permittee has received a permit modification under section 301(c), 301(g), 301(h), 301(i), 301(k), 301(n), or 316(a); or
> (E) The permittee has installed the treatment facilities required to meet the effluent limitations in the previous permit and has properly operated and maintained the facilities but has nevertheless been unable to achieve the previous effluent limitations, in which case the

limitations in the reviewed, reissued, or modified permit may reflect the level of pollutant control actually achieved (but shall not be less stringent than required by effluent guidelines in effect at the time of permit renewal, reissuance, or modification).
(ii) Limitations. In no event may a permit with respect to which paragraph (l)(2) of this section applies be renewed, reissued, or modified to contain an effluent limitation which is less stringent than required by effluent guidelines in effect at the time the permit is renewed, reissued, or modified. In no event may such a permit to discharge into waters be renewed, issued, or modified to contain a less stringent effluent limitation if the implementation of such limitation would result in a violation of a water quality standard under section 303 applicable to such waters.

The existing NPDES permit (R5-2002-0210) contained Effluent Limitations for nitrate and nitrite. Ammonia is present in domestic wastewater. The wastewater treatment plant nitrifies the wastestream converting ammonia to nitrite and nitrate. The wastewater is then denitrified to remove nitrite and nitrate. Failure to properly operate the treatment plant in this mode will result in the discharge of nitrites and nitrate thereby causing exceedance of the drinking water maximum contaminant levels (MCLs), Chemical Constituents water quality objectives. The Regional Board does not have the authority to mandate operations at the wastewater treatment plant. The threat to water quality has not been removed and an Effluent Limitation must be maintained in accordance with the antibacksliding regulations.

RESPONSE: Order No. R5-2002-0210 included an AMEL for the sum of nitrate and nitrite of 10 mg/L. The removal of effluent limitations for nitrate plus nitrite was incorrect. The MEC for nitrate plus nitrite was 14.1 mg/L, based on 333 samples collected between January 2005 through December 2007. The maximum 30-day rolling average effluent concentration was 13.6 mg/L, which occurred in November 2006. Therefore, the effluent does exhibit reasonable potential to cause or contribute to an exceedance of the Primary MCL of 10 mg/L. The proposed Order has been revised to include an AMEL for nitrate plus nitrite of 10 mg/L.

40 CFR 122.45(f)(1)(ii) states that mass limitations are not required when applicable standards and limitations are expressed in terms of other units of measurement. The numerical effluent limitations for nitrate plus nitrite in the proposed Order are based on water quality standards and objectives. These standards and objectives are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with Federal Regulations. Because the effluent limitation for nitrate plus nitrite is based on a water quality objective that is concentration-based, mass-based effluent limitations are not necessary and have not been retained from Order No. R5-2002-0210.

Order No. R5-2002-0210 also included an AMEL for nitrite of 1 mg/L. The MEC for nitrite was 0.3 mg/L, based on 155 samples collected between January 2005 through December 2007. The maximum 30-day rolling average effluent concentration was 0.11 mg/L, which occurred in July 2006.

Therefore, nitrite does not exhibit reasonable potential to cause or contribute to an exceedance of the Primary MCL of 1 mg/L. Thus, effluent limitations for nitrite have not been retained from Order No. R5-2002-0210. The proposed Order removes the effluent limitations for nitrite based on new information consistent with anti-backsliding requirements of 40 CFR 122.44(l)(2)(i)(B)(1).

CSPA Comment No. 12. The proposed Permit does not contain Effluent Limitations for chronic toxicity and therefore does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP).

The proposed Permit, Fact Sheet page F-33 *Chronic Aquatic Toxicity Table F-8*, shows that the discharge caused chronic toxicity by reduced survival, inhibited growth and reduced reproduction on 23 October 2007 and 20 November 2007; and reduced survival and inhibited growth on 15 January 2008. The discharge was toxic on these occasions. The Regional Board did not take any enforcement action since there are no Effluent Limitations preventing toxicity in the NPDES permit. The proposed Permit continues to fail to include Effluent Limitations for chronic toxicity despite toxic discharges. The proposed Permit also fails to require a toxicity reduction evaluation (TRE) despite the toxic discharges. By being toxic, the discharge has gone beyond a reasonable potential to cause, or contribute to chronic toxicity in receiving waters mandating an Effluent Limitation.

Proposed Permit, State Implementation Policy states that: “On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.”

The SIP, Section 4, Toxicity Control Provisions, Water Quality-Based Toxicity Control, states that: “A chronic toxicity effluent limitation is required in permits for all dischargers that will cause, have a reasonable potential to cause, or contribute to chronic toxicity in receiving waters.” The SIP is a state Policy and CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy.

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including state narrative criteria for water quality. There has been no argument that domestic sewage contains

toxic substances and presents a reasonable potential to cause toxicity if not properly treated and discharged. The Water Quality Control Plan for the Sacramento/ San Joaquin River Basins (Basin Plan), Water Quality Objectives (Page III-8.00) for Toxicity is a narrative criteria which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. The Proposed Permit states that: "…to ensure compliance with the Basin Plan's narrative toxicity objective, the discharger is required to conduct whole effluent toxicity testing…". However, sampling does not equate with or ensure compliance. The Tentative Permit requires the Discharger to conduct an investigation of the possible sources of toxicity if a threshold is exceeded. This language is not a limitation and essentially eviscerates the Regional Board's authority, and the authority granted to third parties under the Clean Water Act, to find the Discharger in violation for discharging chronically toxic constituents. An effluent limitation for chronic toxicity must be included in the Order. In addition, the Chronic Toxicity Testing Dilution Series should bracket the actual dilution at the time of discharge, not use default values that are not relevant to the discharge.

Proposed Permit is quite simply wrong; by failing to include effluent limitations prohibiting chronic toxicity the proposed Permit does not "…implement the SIP". The Regional Board has commented time and again that no chronic toxicity effluent limitations are being included in NPDES permit until the State Board adopts a numeric limitation. The Regional Board explanation does not excuse the proposed Permit's failure to comply with Federal Regulations, the SIP, the Basin Plan and the CWC. The Regional Board's Basin Plan, as cited above, already states that: "…waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses…" Accordingly, the proposed Permit must be revised to prohibit chronic toxicity (mortality and adverse sublethal impacts to aquatic life, (sublethal toxic impacts are clearly defined in EPA's toxicity guidance manuals)) in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the Basin Plan and the SIP.

> **RESPONSE:** This was an issue addressed in State Water Resources Control Board's Water Quality Order for the City of Davis (WQO 2008-0008) adopted on 2 September 2008. With regard to the need for a numeric chronic toxicity effluent limit, WQO 2008-0008 states, "*We have already addressed this issue in a prior order and, once again, we conclude that a numeric effluent limitation for chronic toxicity is not appropriate at this time*." However, the Order goes on to state, "*Our review of the Permit, however, concludes that it does not include an appropriate narrative effluent limitation for chronic toxicity and that one must be added*." The proposed Order contained a narrative limitation for chronic toxicity that stated "*The effluent discharge shall not cause chronic toxicity in the receiving water*." Regional Water Board staff finds that this narrative limitation does not adequately address the presence of toxicity in the effluent. Therefore, based on the recent Water Quality Order and recently adopted Orders by the Regional Water Board, the narrative chronic toxicity effluent limitation in section IV.A.1.a.iv and IV.A.1.b.iv of the proposed Order has been revised as follows:
>
> "*iv.* ***Chronic Whole Effluent Toxicity.*** *There shall be no chronic toxicity in the effluent discharge*."

In addition, as discussed in the response to Discharger Comment No. 8, the following compliance determination language has been included at section VII.G of the proposed Order:

"*G.* ***Chronic Whole Effluent Toxicity Effluent Limitation.*** *Compliance with the accelerated monitoring and TRE/TIE provisions contained at section VI.C.2.a shall constitute compliance with effluent limitation IV.A.1.a.iv and IV.A.1.b.iv for chronic whole effluent toxicity*."

CSPA also contends that the Chronic Toxicity Testing Dilution Series in the proposed Order should bracket the actual dilution at the time of discharge, and not use default values that are not relevant to the discharge. Regional Water Board staff disagrees. The proposed Order does not allow a dilution credit for chronic aquatic life criteria. Thus, the dilution series is appropriate and relevant to the discharge.

CSPA Comment No. 13. The proposed Permit contains an inadequate antidegradation analysis that does not comply with the requirements of Section 101(a) of the Clean Water Act, Federal Regulations 40 CFR § 131.12, the State Board's Antidegradation Policy (Resolution 68-16) and California Water Code (CWC) Sections 13146 and 13247.

The antidegradation policy discussion in the Fact Sheet, pages F-37 and F-38, states that the increased flow rates will not have any impact on aquatic life and will not cause violation of water quality objectives. There is no supporting documentation; the antidegradation analysis in the proposed Permit is not simply deficient, it is literally nonexistent. To the contrary, as is stated above: the proposed Permit, Fact Sheet page F- 33 *Chronic Aquatic Toxicity Table F-8,* shows that the discharge caused chronic toxicity by reduced survival, inhibited growth and reduced reproduction on 23 October 2007 and 20 November 2007; and reduced survival and inhibited growth on 15 January 2008. The discharge was toxic on these occasions. The brief discussion of antidegradation requirements, in the Findings and Fact Sheet, consist only of skeletal, unsupported, undocumented conclusory statements totally lacking in factual analysis. The Tentative Permit fails to properly implement the Basin Plan's Antidegradation Policy.

CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy. The State Board has adopted the Antidegradation Policy (Resolution 68-16), which the Regional Board has incorporated into its Basin Plan. The Regional Board is required by the CWC to comply with the Antidegradation Policy.

Section 101(a) of the Clean Water Act (CWA), the basis for the antidegradation policy, states that the objective of the Act is to "restore and maintain the chemical, biological and physical integrity of the nation's waters." Section 303(d)(4) of the CWA carries this further, referring explicitly to the need for states to satisfy the antidegradation regulations at 40 CFR § 131.12 before taking action to lower water quality. These regulations (40 CFR § 131.12(a)) describe the

federal antidegradation policy and dictate that states must adopt both a policy at least as stringent as the federal policy as well as implementing procedures.

California's antidegradation policy is composed of both the federal antidegradation policy and the State Board's Resolution 68-16 (State Water Resources Control Board, Water Quality Order 86-17, p. 20 (1986) ("Order 86-17); Memorandum from Chief Counsel William Attwater, SWRCB to Regional Board Executive Officers, "federal Antidegradation Policy," pp. 2, 18 (Oct. 7, 1987) ("State Antidegradation Guidance")). As a state policy, with inclusion in the Water Quality Control Plan (Basin Plan), the antidegradation policy is binding on all of the Regional Boards (Water Quality Order 86- 17, pp. 17-18).

Implementation of the state's antidegradation policy is guided by the State Antidegradation Guidance, SWRCB Administrative Procedures Update 90-004, 2 July 1990 ("APU 90-004") and USEPA Region IX, "Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12" (3 June 1987) (" Region IX Guidance"), as well as Water Quality Order 86-17.

The Regional Board must apply the antidegradation policy whenever it takes an action that will lower water quality (State Antidegradation Guidance, pp. 3, 5, 18, and Region IX Guidance, p. 1). Application of the policy does not depend on whether the action will actually impair beneficial uses (State Antidegradation Guidance, p. 6). Actions that trigger use of the antidegradation policy include issuance, re-issuance, and modification of NPDES and Section 404 permits and waste discharge requirements, waiver of waste discharge requirements, issuance of variances, relocation of discharges, issuance of cleanup and abatement orders, increases in discharges due to industrial production and/or municipal growth and/other sources, exceptions from otherwise applicable water quality objectives, etc. (State Antidegradation Guidance, pp. 7-10, Region IX Guidance, pp. 2-3). Both the state and federal policies apply to point and nonpoint source pollution (State Antidegradation Guidance p. 6, Region IX Guidance, p. 4).

The State Board's APU 90-004 specifies guidance to the Regional Boards for implementing the state and federal antidegradation policies and guidance. The guidance establishes a two-tiered process for addressing these policies and sets forth two levels of analysis: a simple analysis and a complete analysis. A simple analysis may be employed where a Regional Board determines that: 1) a reduction in water quality will be spatially localized or limited with respect to the waterbody, e.g. confined to the mixing zone; 2) a reduction in water quality is temporally limited; 3) a proposed action will produce minor effects which will not result in a significant reduction of water quality; and 4) a proposed activity has been approved in a General Plan and has been adequately subjected to the environmental and economic analysis required in an EIR. A complete antidegradation analysis is required if discharges would result in: 1) a substantial increase in mass emissions of a constituent; or 2) significant mortality, growth impairment, or reproductive impairment of resident species. Regional Boards are advised to apply stricter scrutiny to non-threshold constituents, i.e., carcinogens and other constituents that are deemed to present a risk of source magnitude at all non-zero concentrations. If a Regional Board cannot find that the above determinations can be reached, a complete analysis is required.

Even a minimal antidegradation analysis would require an examination of: 1) existing applicable water quality standards; 2) ambient conditions in receiving waters compared to standards; 3) incremental changes in constituent loading, both concentration and mass; 4) treatability; 5) best practicable treatment and control (BPTC); 6) comparison of the proposed increased loadings relative to other sources; 7) an assessment of the significance of changes in ambient water quality and 8) whether the waterbody was a ONRW. A minimal antidegradation analysis must also analyze whether: 1) such degradation is consistent with the maximum benefit to the people of the state; 2) the activity is necessary to accommodate important economic or social development in the area; 3) the highest statutory and regulatory requirements and best management practices for pollution control are achieved; and 4) resulting water quality is adequate to protect and maintain existing beneficial uses. A BPTC technology analysis must be done on an individual constituent basis; while tertiary treatment may provide BPTC for pathogens, dissolved metals may simply pass through.

Any antidegradation analysis must comport with implementation requirements in State Board Water Quality Order 86-17, State Antidegradation Guidance, APU 90-004 and Region IX Guidance. The conclusory, unsupported, undocumented statements in the Permit are no substitute for a defensible antidegradation analysis.

There is nothing in the Permit resembling an analysis that ensures that existing beneficial uses are protected. While the Permit identifies the constituents that are included on the 303(d) list for downstream waters as impairing receiving waters, it fails to discuss how and to what degree the identified beneficial uses will be additionally impacted by the discharge. Nor does the Permit analyze the incremental and cumulative impact of increased loading of non-impairing pollutants on beneficial uses. In fact, there is almost no information or discussion on the composition and health of the identified beneficial uses. Any reasonably adequate antidegradation analysis must discuss the affected beneficial uses (i.e., numbers and health of the aquatic ecosystem; extent, composition and viability of agricultural production; people depending upon these waters for water supply; extent of recreational activity; etc.) and the probable effect the discharge will have on these uses.

> **RESPONSE:** At the time that Order No. R5-2002-0210 was adopted, the Discharger was in the initial stages of the process of adding additional tertiary treatment to accommodate an average dry weather flow of 3.6 MGD. Therefore, Order No. R5-2002-0210 included a time schedule to allow the Discharger adequate time to construct the necessary facilities and authorized a flow increase from 2.5 MGD to 3.6 MGD upon completion of the improvements and certification by a Registered Civil Engineer. The Discharger submitted the required certification on 4 April 2004, fulfilling the necessary requirements for the Discharger to discharge up to 3.6 MGD (average dry weather flow). The Regional Water Board found in Order No. R5-2002-0210 that "*The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant*."

As discussed above, the increase in flow capacity was authorized by Order No. R5-2002-0210. The proposed Order does not authorize an increase in flow. Therefore an antidegradation analysis is not necessary. The proposed Order has been revised to clarify that the increase in flow capacity was authorized by Order No. R5-2002-0210 which found that the permitted discharge was consistent with antidegradation requirements, and that an increase in flow beyond 3.6 MGD average dry weather flow is not authorized by the proposed Order.

CSPA Comment No. 14. The proposed Permit does not contain an Effluent Limitation for oil and grease in violation of Federal Regulations 40 CFR 122.44 and California Water Code, Section 13377.

The proposed Permit is for a domestic wastewater treatment plant. Domestic wastewater treatment plants, by their nature, receive oil and grease in concentrations from home cooking and restaurants that present a reasonable potential to exceed the Basin Plan water quality objective for oil and grease (Basin Plan III-5.00). Confirmation sampling is not necessary to establish that domestic wastewater treatment systems contain oil and grease in concentrations that present a reasonable potential to exceed the water quality objective. It is not unusual for sewerage systems to allow groundwater cleanup systems, such as from leaking underground tanks, to discharge into the sanitary sewer. Groundwater polluted with petroleum hydrocarbons can also infiltrate into the collection system as easily as sewage exfiltrates. The Central Valley Regional Board has a long established history of including oil and grease limitations in NPDES permits at 15 mg/l as a daily maximum and 10 mg/l as a monthly average, which has established BPTC for POTWs.

The California Water Code (CWC), Section 13377 states in part that: "…the state board or the regional boards shall…issue waste discharge requirements…which apply and ensure compliance with …water quality control plans, or for the protection of beneficial uses…" Section 122.44(d) of 40 CFR requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. Where numeric water quality objectives have not been established, 40 CFR §122.44(d) specifies that WQBELs may be established using USEPA criteria guidance under CWA section 304(a), proposed State criteria or a State policy interpreting narrative criteria supplemented with other relevant information, or an indicator parameter. US EPA has interpreted 40 CFR 122.44(d) in Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program (Fact sheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "where the preponderance of evidence clearly indicates the potential to cause or contribute to an exceedance of State water quality standards (even though the data may be sparse or absent) a limit MUST be included in the permit." Failure to include an effluent limitation for oil and grease in the proposed permit violates 40 CFR 122.44 and CWC 13377.

RESPONSE: Regional Water Board staff disagree that effluent limitations for oil and grease are necessary simply because the Facility is a wastewater treatment plant. The Discharger is required to be covered under State Water Board Order 2006-0003, a Statewide General WDR for Sanitary Sewer Systems, which requires each enrollee to evaluate its service area to determine whether a Fat, Oil, and Grease (FOG) control program is needed. If an enrollee determines that a FOG control program is not needed, the enrollee must provide justification for why it is not needed. If FOG is found to be a problem, the enrollee must prepare and implement a FOG source control program to reduce the amount of these substances discharged to the sanitary sewer system. The Discharger's compliance with the requirements of WQO 2006-0003 will ensure significant amounts of oil and grease are not discharged into the Facility.

Additionally, the proposed Order is adequately protective as it requires the Discharger to submit for review, a written description of the pretreatment program within 1 year of Order adoption, and further to implement its approved pretreatment program. As part of the pretreatment program requirements contained at section VI.C.5.a of the proposed Order, the Discharger is required to implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that incompatible wastes are not introduced to the treatment system, which include solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works, and petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through.

The proposed Order also contains narrative receiving water limitations for oil and grease and floating materials.